

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
31 July 2003 (31.07.2003)

PCT

(10) International Publication Number  
**WO 03/062176 A1**

- (51) International Patent Classification<sup>7</sup>: C07C 7/12, C10G 25/02, B01J 41/04, 41/14
- (21) International Application Number: PCT/GB03/00184
- (22) International Filing Date: 17 January 2003 (17.01.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
0201457.9 23 January 2002 (23.01.2002) GB  
0201461.1 23 January 2002 (23.01.2002) GB
- (71) Applicant (for all designated States except US): **JOHN-SON MATTHEY PLC** [GB/GB]; 2-4 Cockspur Street, Trafalgar Square, London SW1Y 5BQ (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **CARNELL, Peter, John, Herbert** [GB/GB]; 50 Hartburn Village, Stockton on Tees, Cleveland TS18 5DP (GB). **YOUNG, Nicola** [GB/GB]; 26 Hamilton Drive, Darlington, County Durham DL1 3TS (GB). **WOOD, Peter** [GB/GB]; 98 Grange Avenue, Stockton on Tees, Cleveland TS18 4PR (GB).
- (74) Agents: **GIBSON, Sara, Hillary, Margaret et al.**; Syntetix Intellectual Property Department, P.O. Box 1, Belasis Avenue, Billingham, Cleveland TS23 1LB (GB).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: SULPHIDED ION EXCHANGE RESINS

(57) Abstract: Sulphided ion exchange resins containing primary or secondary amino groups. They may be obtained by passing a non-aqueous liquid, e.g. a hydrocarbon, feedstock containing elemental sulphur or organic, or inorganic, di- or poly-sulphides through a bed of an ion exchange resin containing primary or secondary amino groups, and so unsulphided ion exchange resins containing primary or secondary amine groups may be used to remove such elemental sulphur or sulphur compounds from liquid, e.g. hydrocarbon, feedstocks. The sulphided ion exchange resins may be used to remove elemental mercury or organic mercury compounds from liquid, e.g. hydrocarbon, streams.

WO 03/062176 A1

BEST AVAILABLE COPY